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United States Department of Agriculture
Forest Service

FOREST PEST MANAGEMENT

Technology Update

Southern Region, USDA Forest Service, 1720 Peachtree Rd. N.W. Atlanta, Ga. 30367

Southern Pine Beetle Fact Sheet Number 43

TFS Grid Hazard

Purpose

This fact sheet presents a system to rate relative susceptibility of pine stands to infestation by the southern pine beetle (SPB).

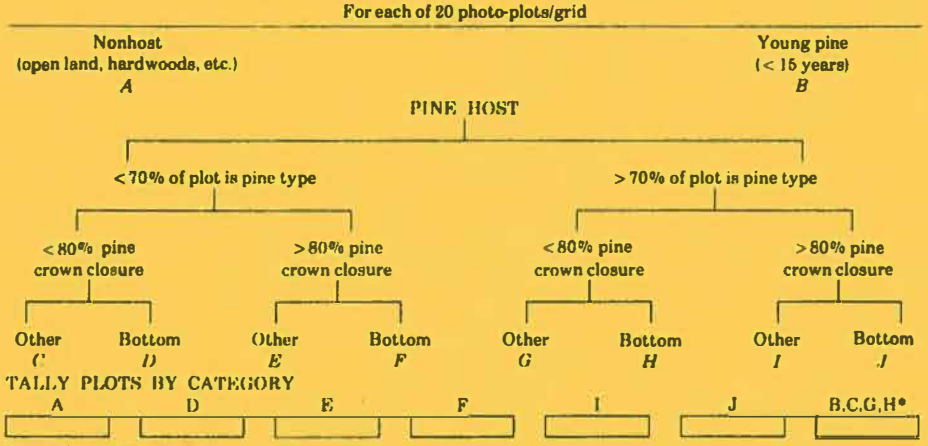
Description

TFS Grid Hazard is a system designed to assign high, moderate or low hazard ratings to timber stands susceptible to attack by the SPB. The system was developed for use on large areas–Texas Forest Service grid blocks of 18,000-acre units. The system is based on site and stand conditions likely to support outbreak populations of SPB. The system was developed and validated in east Texas using historical beetle infestation records. You can easily apply the system with broad data categories. Although specifically designed for east Texas, the technique is easily adaptable to other areas in the Gulf Coastal States.

Inputs

Information on host type, percent pine, stand density, and landform position from each of 20 uniformly distributed, circular 30-acre photo plots per grid block. Photo samples may be interpreted from 1:60,000 to 1:120,000 scale color infrared photography. The site/stand factors and classification considered are:

1. Presence of host type, nonhost type or, if pine, whether the trees are more, or less, than 15 years of age
2. Percentage of pine (do they make up more or less than 70 percent of stand pine type?)
3. Percentage crown closure (more or less than 80 percent)
4. Landform classfication (bottomland or other terrain)



* not used to determine hazard.

** Values for input variables (A-J) are the numbers of photo plots in each of the combinations of site/stand conditions (only values for A, D, E, F, I, and J are utilized in the equation.)

Outputs

A number score where:

Score =	Hazard class =
>1.1	High
0.4 to 1.1	Moderate
<0.4	Low

Reference

Billings, R.F.; Bryant, C.M.;Wilson, K.H.1985. Development, implementation, and validation of a large area hazard- and risk-rating system for southern pine beetle. In: Branham. S.J.;Thatcher, R.C., eds. Integrated pest management research symposium proceedings. 1985 April 15-18; Asheville, NC. General Technical Report S0-56. New Orleans: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 226-232.

Additional Information

Questions regarding this model and its use may be addressed to Dr. Ronald F. Billings, Texas Forest Service. Pest Control Section, P.O. Box 310, Lufkin, TX 75901; telephone (409) 639-8170.